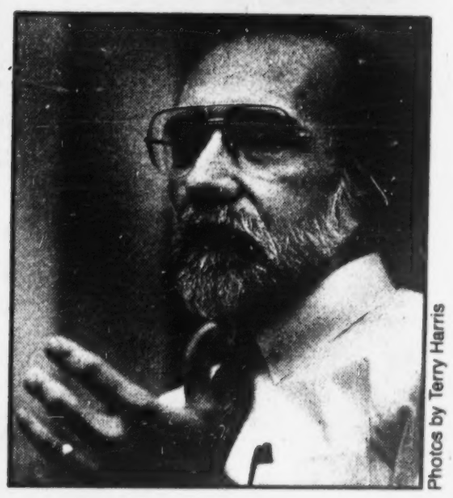

Photos by Terry Harris

Clockwise from top left, Betty Merti feels "like I've been educated for the first time." Nancy Swanson calls the program "a real godsend." George Kasunich says his degree will give him "one more bullet in my ammo belt." Carol Polkinghorn says participants gain new perspectives.

Like Ms. Swanson, most of the 18 other students have taught for many years as well as serving as instructional leaders, department heads, and staff-development specialists. As a result, they do not want or need the normal array of courses offered in schools of education.

Educational-leadership students complete just two courses on education—supervision of instruction and educational leadership—in addition to their core courses on finance, management, and the like.

Velma Saire teaches both education courses. "We were always changing the syllabus because we made courses that were really relevant to what was going on in schools," she says. "These are experienced practitioners, and they were identifying what they needed in their schools."

Rather than spending an entire semester on school law, for instance, the students attend a daylong seminar on the topic. Whatever the subject, Ms. Saire says, she emphasizes the need for the students to apply what they learn.

Likewise, in the more business-oriented courses, the educators complete papers and projects on topics related to education, says Carol Polkinghorn, an instructional leader for the Greensburg Salem, Pa., schools. In one computer course, for example, she created a data base schools can use.

Educators and non-educators alike benefit from working and studying together in the program, Ms. Polkinghorn says.

"We've been able to give them a different perspective on the role of education, and they've helped us see how they operate and what they need from our students and our schools," she explains.

Emphasis on Relevance

Mr. Faulk, the associate dean, has intentionally relied on adjunct professors, who practice what they teach, to keep the program as relevant and up-to-date as possible. Ms. Saire's résumé, for example, includes positions as a teacher, a Head Start program director, and a magnet-school principal. Other adjunct faculty members include a management consultant, a former planner for Westinghouse, the owner of a marketing firm, and a practicing psychiatrist.

But the emphasis on relevance does not end with the faculty. Midway though the program, the students attend a two-day assessment center for principals. For eight hours a day, the center runs participants through a range of group and individual activities designed to simulate an administrator's duties.

In one typical exercise, participants pretend they have been hired at a school that has been without a principal for two months. They have 90 minutes to sort through the principal's in box and deal with problems that have arisen.

The group activities, however, give the best illustration of Carnegie Mellon's nontraditional approach. Many participants from other districts and universities considered themselves a failure if their group did not adopt their remedy for a problem, Ms. Swanson says. "But we didn't see it that way. If the group came up with the best solution, then the group did its job."

Adds fellow student Suzan Peterson: "We were all interested in the human-management side of things. We need to work through problems together; no one charges in with the ultimate solution."

In addition to the assessment-center exercises, the Carnegie Mellon students also complete an internship, working with a practicing principal or administrator from outside their school or district.

Pressure To Do Well

It is too early to judge the success of Carnegie Mellon's approach to training administrators, since the program's two graduates are still new to their jobs. Mr. Masciola, the administrative assistant in Washington, says he feels extra pressure to do well because his training was longer and more expensive than that of many traditional programs.

"If we come out of there with this degree, and we're not applying everything that's been taught to us and doing it in a successful way," he says, "people are going to say, 'What's the advantage of going into this non-traditional setting?' "

But if the students' glowing comments about the program are any gauge, other institutions may want to consider the Carnegie Mellon approach.

"I feel like I've been educated for the first time in my life," says Ms. Merti, the assistant principal. "My philosophy about kids hasn't changed, but my philosophy about how we need to change education has as a result of the program."

George Kasunich, the only independent-school educator in the program, calls the degree in public management he will earn "one more bullet in my ammo belt of life."

"I think this degree will make the next 20 years of my working life the most exciting 20 years," says Mr. Kasunich, the science-department chairman at Shadyside Academy here in Pittsburgh. "I'm looking at people my age who are starting to wind down, and I'm frightened by what I see. I was satisfied for quite a while, but I'm no longer satisfied." ■

wanted to try to spend an hour or two back in the central office. Then it's back over to the elementary during lunch time and recess. Even though we use parent volunteers out on the playground at recess, I go out there just about every day for a little while. Then after lunch is over, I come back to the central office. Then I end up back at the elementary school at the end of the day getting the buses out around 3:00.

I find I really end up spending more time in the elementary building than I had anticipated—particularly at this time of year, because we get into teacher appraisals and I need to be in the classrooms. As principal, I am responsible for conducting the appraisals. As superintendent, normally my elementary principal would be doing that. Since I'm both, it takes a lot of time.

Q. Didn't you also fill in as an aide in the cafeteria?

A. For the first half of the year, I did that. They've fired me from that job. One of the positions we cut back on, among others, was the elementary cafeteria aide. The board of education . . . made some staff adjustments in mid-year that saved a little bit of money that was used to hire an aide. It's one of the best ways to get to know the kids, but it was taking two hours out of my day, every day. Not having to do that makes a big difference.

Q. Can you keep this up?

A. I don't think so. In fact, I have just decided that I am going to change positions. If I wanted to remain in a superintendency, I would definitely remain here. The decision is . . . related to personal things.

[In the four years I have been superintendent,] we've just had a series of things that have occurred, that were nobody's fault. When I came into the superintendency, we were just starting a campuswide renovation program. We had some difficulties with the contractor and the architects, and it ended up being a really tough time. We were in here all summer in T-shirts cleaning up rooms, trying to get the schools opened. A series of things, the levies and so forth, were affecting me personally a little bit more than I thought it needed to.

Q. What are you going to do?

A. I'm looking at different options. My contract is over July 31. I will certainly stay in education, in administration, in some way. This is a community and a school district with a really good reputation. Our students do well academically; we have good community participation. I just can't help but think that in the near future, it will turn around. ■

DIMENSIONS

Principals in Public Schools

Selected Characteristics	Total[1]	Percent of principals, by highest degree earned[2]: Bachelor's	Master's	Education Specialist	Doctor's& First Professional	Average years of experience: As a Principal	Other School Position	As a Teacher
Total	77,890	2.4	53.4	35.1	8.9	10.0	3.8	9.8
Sex								
Men	58,585	1.9	55.7	34.3	8.2	11.2	3.6	9.0
Women	19,118	3.9	48.6	37.8	11.3	6.1	4.0	12.3
Race ethnicity								
White[3]	69,048	2.5	53.7	35.0	8.6	10.1	3.6	9.6
Black[3]	6,696	(5)	51.4	36.9	11.5	8.8	4.8	11.8
Hispanic[4]	2,483	(5)	54.2	30.2	(5)	6.6	5.4	9.8
Asian or Pacific Islander	434	(5)	52.8	33.4	(5)	7.7	4.5	10.8
American Indian or Alaskan Native[3]	821	(5)	51.2	(5)	(5)	9.9	4.6	9.1
Age								
Under 40	14,430	3.6	54.7	33.7	(5)	4.3	2.5	7.8
40 to 44	17,755	2.0	49.0	39.7	9.2	6.8	3.7	9.2
45 to 49	16,408	0.0	52.8	35.8	9.6	10.0	4.0	10.3
50 to 54	14,936	2.2	56.6	33.2	7.9	13.2	4.3	10.6
55 or over	13,891	2.7	55.9	31.7	9.6	16.5	4.1	11.4

Note: Details may not add to 100 percent because of rounding and survey item nonresponse.

Source: National Center for Education Statistics

[1] Total differs from data appearing in other tables because of varying survey processing procedures and time period coverages.
[2] Percentages for those with less than a bachelor's degree are not shown.
[3] Includes persons of Hispanic origin.
[4] Persons of Hispanic origin may be of any race.
[5] Too few sample cases (fewer than 30) for a reliable estimate.

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EDUCATION WEEK

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Schools' 'Glass Ceiling' Imperils Girls, Study Says

Enforce Title IX, Revise Curricula, Report Urges

By Millicent Lawton

WASHINGTON—Girls face pervasive barriers to achievement throughout their precollegiate schooling and are "systematically discouraged" from pursuing studies that would enhance their prospects for well-paying jobs, a study to be released this week contends.

The report, commissioned by the American Association of University Women, is described as the first synthesis of the existing research on girls in public education.

It lists 40 recommendations for bringing about more equitable treatment of girls by schools, ranging from strengthened enforcement of federal laws prohibiting sex discrimination to the adoption of "gender fair" curricula. The recommendations will be the basis for discussion at a national summit of education organizations scheduled to be held here Feb. 12 in conjunction with the report's release.

"Construction of the glass ceiling begins not in the executive suite but in the classroom," Alice McKee, the president of the A.A.U.W. Educational Foundation, said in a statement accompanying the report.

"It starts in preschool. . . . By the time

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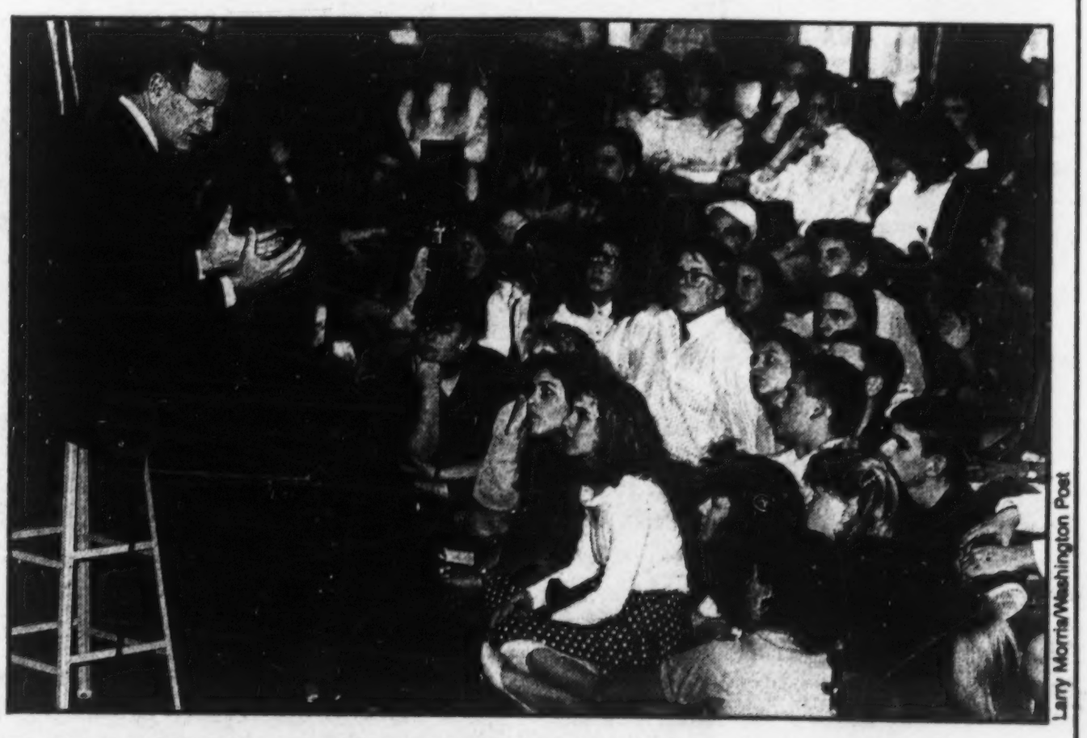

Larry Morris/Washington Post

President Bush's opponents are likely to portray education as one more domestic arena in which he has made more promises than he has kept.

Self-Styled 'Education President' Places His Record Before Voters

By Lynn Olson
And Julie A. Miller

In declaring himself the "education President" in 1988, George Bush virtually guaranteed education a spot in his 1992 campaign.

But the challenge will be to turn that moniker into an asset—and not a liability—during a year when Mr. Bush has been roundly criticized for his slighting of domestic issues.

"It does raise the ante on this issue," said Neil Newhouse, a partner in Public Opinion Strategies, a Republican polling firm. "It makes it necessary to discuss education, to have a program for it, and to put something on the table."

As President Bush's budget proposal for next year made clear, the education agenda that he intends to promote on the stump will carry few surprises.

ELECTION '92

His package remained essentially the same as last year's: national standards and testing, "new American schools," greater flexibility for teachers, and more choice for parents.

Continued on Page 27

20-Nation Study Shows U.S. Lags In Math, Science

Few Clues to Success Found in E.T.S. Survey

By Robert Rothman

WASHINGTON—The first international study published since U.S. officials set a goal of leading the world in student achievement in mathematics and science suggests that the United States appears far from reaching its target.

The 20-nation study, conducted by the Educational Testing Service, found that American 13-year-olds outperformed only those from Jordan, Portugal, Brazil, and Mozambique in mathematics, and only students from those countries and Ireland in science.

The validity of cross-national assessments is debated, page 12.

U.S. 9-year-olds, by contrast, were among the highest-performing of 14 nations in science. But the younger students performed near the bottom of the international rankings in math.

The study also found that, in virtually all nations, including the United States, the top 10 percent of students performed well above average, and the bottom 10 percent performed relatively poorly.

It also found no clear correlation between performance and factors reformers often suggest—such as the length of the school day or year, the amount of money spent on education, and the use of innovative instructional techniques.

Continued on Page 13

Claims of Success By 'Hooked on Phonics' Called Into Question

By Debra Viadero

By now, millions of Americans have encountered the radio or television commercials for "Hooked on Phonics." By purchasing the $179.95 kit, the advertisements proclaim, children can become "super readers," and illiterate adults, in the privacy of their own homes, can finally learn how to read.

The intensive advertising campaign has proved successful for the product's manufacturer, Gateway Products Ltd. of Orange, Calif.

According to the company's marketing brochures, more than half a million Hooked on Phonics kits have been sold since the product was first introduced five years ago. Even amid the current recession—and despite a concerted effort by the manufacturer in recent months to tone down its advertising campaign—the product apparently continues to sell.

A growing number of reading experts, however, have begun to question some of the claims that Hooked on Phonics makes in those commercials.

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Complex Set of Pieces Needed To Fill In School-Readiness Puzzle

By Deborah L. Cohen

The success of the six national education goals, many educators and policy analysts maintain, hinges to a great degree on the first: ensuring that, by the year 2000, all children enter school ready to learn.

If children enter school already at risk, they argue, it will be that much harder to raise high-school graduation rates, boost students' competency in key subjects, advance the position of U.S. students to first in the world in science and mathematics, ensure that all adults are literate, and rid schools of drugs and violence.

"If we met Goal 1, we would probably come closer to meeting the other goals," said Sue Bredekamp, the director of professional development for the National Association for the Education of Young Children.

But meeting that goal, experts in education, health, and human

Continued on Page 14

Ron Alston

Many believe that meeting Goal 1 will require a far more comprehensive set of interventions than anything now in place.

Also in the news

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Rarely used, teacher furloughs are a last-ditch effort to balance district budgets.

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The nation's governors exchange heated views over Administration policies.

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The Education Department and the National Science Foundation join forces.

IN SUMMARY

Teachers on Hold
The Los Angeles Unified School District has postponed ratification of its contract with district teachers following the discovery of a $150-million shortfall in the school system's budget. **Page 4.**

Paperwork Alert?
School administrators are concerned that recently adopted federal immigration rules may force them to reverify a substitute teacher's eligibility each time he is called in to work. **Page 5.**

Joining the Fray
Groups representing the nation's independent colleges and universities have pledged to work to bring about reform of elementary and secondary education. **Page 8.**

College Budget Woes
At least 28 states will cut their higher-education budgets this fiscal year, leading to tuition increases, program cuts, and enrollment caps, a new survey finds. **Page 8.**

Petitioning the Bishops
A contract dispute between Catholic-school teachers and their bishop in an Indiana diocese has entered the national spotlight with the involvement of the national Catholic teachers' union. **Page 9.**

Finding Bilingual Teachers
How to meet the growing demand for trained bilingual educators has become a source of serious concern to school officials nationwide. **Page 10.**

Democrats on Education
Of the five major Democratic Presidential candidates, only two have substantial records on education and none has made better schools the centerpiece of his campaign. **Page 28.**

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ACROSS THE NATION

STATES

Ga. Think Tank Blasts Growth Of State Education Bureaucracy

The growth of Georgia's educational bureaucracy over the past two decades has siphoned an additional 24 cents of each education dollar away from classroom instruction, a public-policy think tank asserts in a recent report.

The Georgia Public Policy Foundation said the percentage of education dollars being spent on classroom instruction declined from 76 percent in 1970 to 52 percent in 1990, largely due to massive growth in spending on administrative costs and employee benefits.

If the percentage of educational funding spent on instruction had not declined, Georgia would have spent an additional $6.2 billion on classroom instruction over the past 20 years, according to the report released last month.

Despite the shift in funding toward non-instructional costs, instructional funding in Georgia nonetheless has increased dramatically since 1970 as a result of a 684 percent increase in spending on public education, the report says.

■ **New York State has more than doubled its spending on public education since 1980, but the increased funding has failed to produce significant improvements,** argues a report by the top business lobbying group in the state.

The report by the research arm of the Business Council of New York State urges state officials to require local school districts to cut back on administrative costs and provide more money for the classroom.

The report, "The $11-Billion Mystery," says that annual school spending in the state is now $11 billion higher than in 1980.

"The experience of the past decade proves conclusively that simply pouring more and more money into the same system will not necessarily produce better results," the report states.

The report strongly endorses the "New Compact for Learning" approved by the state board of regents last year. The compact is designed to free schools from administrative regulations to allow greater focus on educational results.

But the report says the regents have been slow to eliminate state mandates under the compact.

"The regents could jump-start the compact," it says, "by widely publicizing the dropping of dozens of state mandates and calling on parents and taxpayers to demand a consequent rearrangement of priorities at the local level."

■ **Florida schools will receive $566,736 worth of computer equipment as a result of a consumer-fraud investigation of a computer retailer.**

The donation, announced late last month, is part of a settlement reached between the state attorney general's office and the Tandy Retail Group of Fort Worth, Tex. The retail chain owns 68 stores in Florida.

An investigation found that between September 1987 and July 1991, the chain charged customers a $2 "warranty-filing fee" without telling them or giving them the option of not paying. The investigation also uncovered such practices as overcharging, delaying refunds, and using "bait and switch" tactics to steer consumers toward more expensive items.

The Tandy Group has agreed to offer refunds to consumers, which could total $1.4 million. The company will also pay the state $30,000 in investigative costs and $75,000 to the consumer-fraud trust fund, state officials said.

A spokesman for the attorney general's office said that the state education department will choose within the next three months the schools to receive the donated equipment, which includes 120 teacher workstations, along with computers, printers, software, and accompanying training seminars. ■

DISTRICTS

Federal Court Rejects Retroactive Use of 1991 Civil Rights Act

A federal appeals court has dismissed a teacher's race-discrimination lawsuit against an Indiana school district and rejected her attempt to retroactively apply the Civil Rights Act of 1991 to her case.

A three-judge panel of the U.S. Court of Appeals for the Seventh Circuit on Jan. 21 upheld a federal district judge's dismissal of the teacher's lawsuit against the school district in Indianapolis. The appellate panel reached that decision even though the district judge had based the dismissal on a 1989 U.S. Supreme Court decision that was overturned last year by the Congress's adoption of the new civil-rights law.

In the case, *Partee* v. *Metropolitan School District of Washington Township*, Maxine Partee contended, among other things, that she had been denied promotions to various positions because of her race.

The district judge said that, based on the 1989 High Court decision in *Patterson* v. *McLean Credit Union*, which limited a key federal race-discrimination statute to the area of hiring, the teacher could not sue for discrimination in promotions once on the job.

But the *Patterson* ruling was one of seven recent High Court decisions overturned by the Congress last year. The Civil Rights Act makes clear that all stages of employment discrimination are covered by federal law.

A major open question in employment law is whether the new civil-rights law will apply retroactively to cases pending when it was enacted.

The Bush Administration and the Equal Employment Opportunity Commission have argued that the law should not apply retroactively. Several federal judges have split on the issue.

The Seventh Circuit panel is the first appellate court to rule on the issue, but the panel rejected Ms. Partee's attempt to apply the 1991 law on procedural instead of substantive grounds. The opinion said the teacher had "waived any consideration" of the issue by not raising it until after oral argument before the panel in December.

■ **The Roman Catholic Archdiocese of**

Recycling Trash Into Art

Whereas most people view trash as a nuisance, some children in Colorado regard it as their personal muse.

Artwork by children in Boulder, Colo., is being showcased in "Enviro-Art," an exhibit at the University of Colorado Museum in Boulder. The collection, cosponsored by a local trash-disposal company, challenged students in the Boulder area to find new ways to use what most people regard as junk.

Leila Cabib

Most of the 200 submissions focus on the animal kingdom, although the creatures owe as much to the landfill as to nature and imagination. A group of 5th graders created a metal crab with a tuna-fish-can shell, bobby-pin legs, and pincers made from soda-can pop tops.

The political overtones of some works suggest their creators are environmental activists in the making. One piece features an oil can spilling its contents onto a bed of flowers where a life-size, Bambi-esque fawn lies in repose.

"The kids' works show a very cheerful and positive look at recycling," says Becky Phillips, the coordinator of the exhibit.

The award-winning "Recycled Rainforest," created by 5th graders at Lafayette Elementary School, features a rainforest the size of a shoe-box, complete with newspaper trees, Styrofoam lions, and egg-carton turtles.

The students' desire to preserve nature didn't end with the exhibit. Now they are saving aluminum cans to raise money to buy a piece of a real rainforest.

—S.K.G.

Math-Science Study Finds U.S. Students Far From the Goal of First in the World

Continued from Page 1

"There is no single magic key unlocking educational excellence," Gregory R. Anrig, the president of the E.T.S., said at a press conference here.

But Mr. Anrig added that the study is valuable because it shows what is possible for students to achieve in math and science.

"Nine- and 13-year-olds can learn a great deal when there is rigorous content," he said. "High expectations produce high achievement."

"We do a great disservice to students when we set the bar too low," Mr. Anrig added.

Secretary of Education Lamar Alexander added that the study reinforces the view that the nation should set high standards for student performance and should encourage all students to reach those standards.

"Until we change the attitudes and standards for schools and children, we will not reach our goals," he said. "The good news is, we can reach the goals."

A Fair Comparison

The study released here last week was the second international assessment of educational progress conducted by the Princeton, N.J.-based testing firm. The first, released in 1989, measured the performance of 13-year-olds from six nations in math and science.

The new study, funded by the Education Department and the National Science Foundation, comes at a time when an increasingly vocal chorus has criticized international comparisons as invalid.

But, largely in response to such critics, the E.T.S.—after consultation with a National Academy of Sciences panel charged with overseeing such studies—undertook a number of steps to ensure that countries' educational performance were not compared unfairly.

For example, in reporting the results, the report's authors pointed out which countries' test-taking populations did not reflect their entire populations of 9- and 13-year-olds.

The study was based on 75-minute multiple-choice and short-answer tests administered to some 175,000 9- and 13-year-olds in 1990 and 1991.

In the United States, about 1,400 students from some 105 schools were tested in each subject at each age level.

The United States had among the lowest participation rates of any country, with between 70 percent and 80 percent of schools selected agreeing to participate in the study.

Archie E. Lapointe, the director of the center for the assessment of educational progress at the E.T.S., said many schools declined to participate in order to protect their students from taking yet another test.

High Expectations

In math, 13-year-olds in China performed at the highest level, with an average score of 80 percent correct. However, the report notes, only half of the 13-year-olds in China are enrolled in school.

> *Students "can learn a great deal when there is rigorous content. High expectations produce high achievement."*
>
> – Gregory R. Anrig

Other high-performing countries were Korea; Taiwan; Switzerland (in which 15 of the 26 cantons participated); the former Soviet Union (which included only Russian students); Hungary; France; the Emilia-Romagna region of Italy; Israel (Hebrew-speaking students); and Canada.

The study found no gender gap in math among 13-year-olds in most of the countries that participated, although, in eight nations, boys outperformed girls.

However, almost all students agreed that math "is for boys and girls about equally."

In examining math curricula, the study found that most countries stress basic whole-number operations at age 13.

It found, however, that those that emphasize algebra and geometry—with the notable exception of Taiwan, where students did well even though geometry is not stressed—performed at relatively high levels on the assessment.

"The shift to more advanced content may suggest an effective strategy for challenging students, for presenting more interesting aspects of mathematics, and for underlining high expectations," the report states.

The report also notes that few countries have adopted the innovative teaching methods reformers in the United States have advocated, and that there is no clear relation between the use of such strategies and student performance on the assessment.

For example, it notes, students in many countries say that they regularly spend instructional time listening to math lessons; few students say they are involved in group work; and many say they do not use calculators or computers in school.

Home Factors Examined

Examining their home backgrounds, however, the study found some clear patterns.

Math achievement is positively related to the number of books in the home and to the amount of time 13-year-olds read for pleasure, the report notes, while achievement decreased with the amount of television watched each day.

Twenty percent or more of test-takers in Israel; Scotland; the United States; Fortaleza, Brazil; and Maputo-Beira, Mozambique, said they watched five hours or more of television a night, the report states.

"It is not among the six national goals to lead the world in the amount of TV we watch," Secretary Alexander said.

The study found little relation, though, between national policies—such as the length of the school year or the amount of the gross national product spent on education—and performance.

Although students in some high-performing countries, such as Korea, go to school 222 days a year, those in Hungary, which also performed well, go to school 177 days, fewer than the average required in the United States.

Among 9-year-olds, the study found, the range in performance was not as great as among the older students, yet those in some countries—particularly Korea—clearly outperformed the others.

The gender gap was not as prevalent at that age as at age 13, it found, and the variations in performance among math topics were not as great. But the study found wide variations among countries in the use of ability-grouping, and little use of hands-on instruction.

Science Assessment

Similarly, the science assessment found much wider variations in performances and practices at age 13 than at age 9.

Among 13-year-olds, it found, the highest performers were in Korea, Taiwan, and Switzerland, while those from Jordan and the Brazilian cities of São Paulo and Fortaleza (which limited participation to the in-school population in restricted grades) had the lowest average scores. Mozambique did not participate in the science assessment.

Among 9-year-olds, however, U.S. students, along with those from Korea, Taiwan, and Canada, performed at the top of the 14-nation list.

Mr. Lapointe suggested that the relatively high U.S. performance at that age could reflect the fact that much of science learning at that level takes place outside of school—in science museums and on television, for example.

The study also found a stronger gender gap in science than in math. Boys at age 13 outperformed girls on the science assessment in all but three countries—Taiwan, Jordan, and England—even though most 13-year-olds believe the subject is equally important for girls and boys.

There were no significant differences in performance between boys and girls at age 9, however, in the United States, the former Soviet Union, Slovenia, the Emilia-Romagna region of Italy, and Scotland. The last two had low rates of participation in the assessment.

No 'Accurate Feedback'

The study also found that, as in math, schools in different countries spend varying amounts of time on science instruction and tend to place differing degrees of emphasis on separate topics in science.

But it found no relationship between instructional time and performance, and little correlation between curricular emphasis and achievement.

Moreover, it found, while relatively few students in most countries conduct science experiments on their own, in only one country—Canada—was there a relationship between experimentation and performance.

In some high-performing countries, such as Korea, Switzerland, and Hungary, one-third of the 13-year-olds reported never conducting experiments.

The study also found that a majority of students from nearly all countries expressed positive attitudes toward science, except in Korea, one of the highest-performing countries.

American students have "very, very positive attitudes" about science and math, said Diane S. Ravitch, the assistant secretary of education for educational research and improvement. "But they are not correlated with achievement."

"They are not good at it," she said. "They are not getting accurate feedback."

Information on how to obtain copies of the reports on the assessment, "Learning Mathematics" and "Learning Science," is available by writing: Center for the Assessment of Educational Progress, Educational Testing Service, Rosedale Road, Princeton, N.J. 08541-0001.

Average Percentage of Questions Answered Correctly by Students in the Second International Assessment of Educational Progress

Countries	Participation	Age:	Math 9	Math 13	Science 9	Science 13
Brazil	Cities of Fortaleza and São Paulo, in-school population, restricted grades					
		Fortaleza	—	32	—	46
		São Paulo	—	37	—	53
Canada	Four provinces at age 9 and nine provinces at age 13 out of a total of 10		60	62	63	69
China	20 of 29 provinces & independent cities, restricted grades, in-school population		—	80	—	67
England	Representative of all students, low participation at both 9 and 13		59	61	63	69
France	Representative of all students		—	64	—	69
Hungary	Representative of all students		68	68	63	73
Ireland	Representative of all students		60	61	57	63
Israel	Hebrew-speaking schools		64	63	61	70
Italy	Province of Emilia-Romagna, low participation at age 9		68	64	67	70
Jordan	Representative of all students		—	40	—	57
Korea	Representative of all students		75	73	68	78
Mozambique	Cities of Maputo and Beira, in-school population, low participation		—	28	—	—
Portugal	Restricted grades, in-school population at age 13		55	48	55	63
Scotland	Representative of all students, low participation at age 9		66	61	62	68
Slovenia	Representative of all students		56	57	58	70
Former Soviet Union	14 out of 15 republics, Russian-speaking schools		66	70	62	71
Spain	All regions except Cataluña, Spanish-speaking schools		62	55	62	68
Switzerland	15 out of 26 cantons		—	71	—	74
Taiwan	Representative of all students		68	73	67	76
U.S.A.	Representative of all students		58	55	65	67
		IAEP Averages:	63	58	62	67

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